

HISTORY OF NOAA'S WIND PROFILER PROGRAM:

From WPDN to NPN

An OAR-NWS Partnership

For 21st Century Weather

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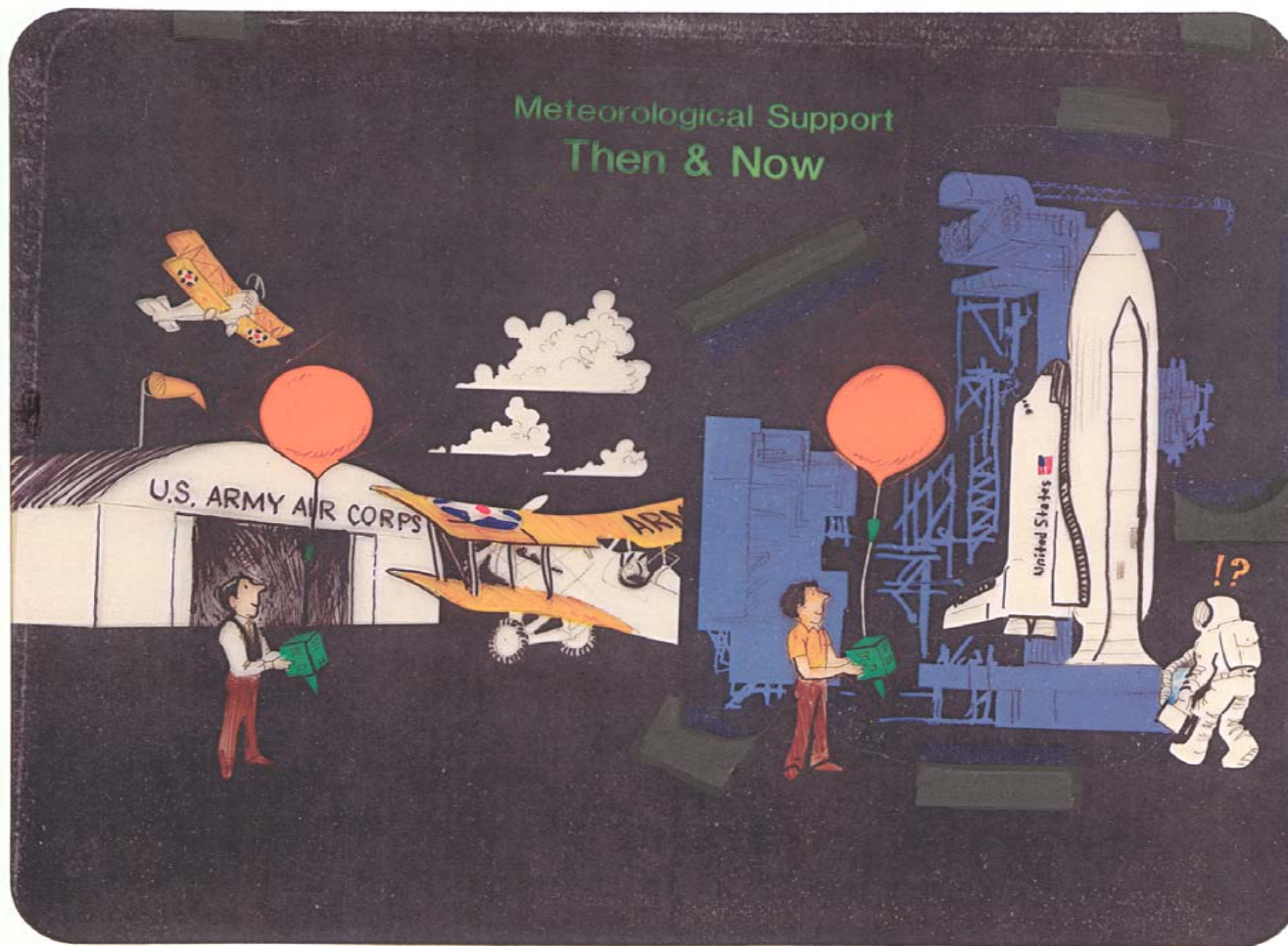
NWS Southern Region/NWS/NOAA/Doc



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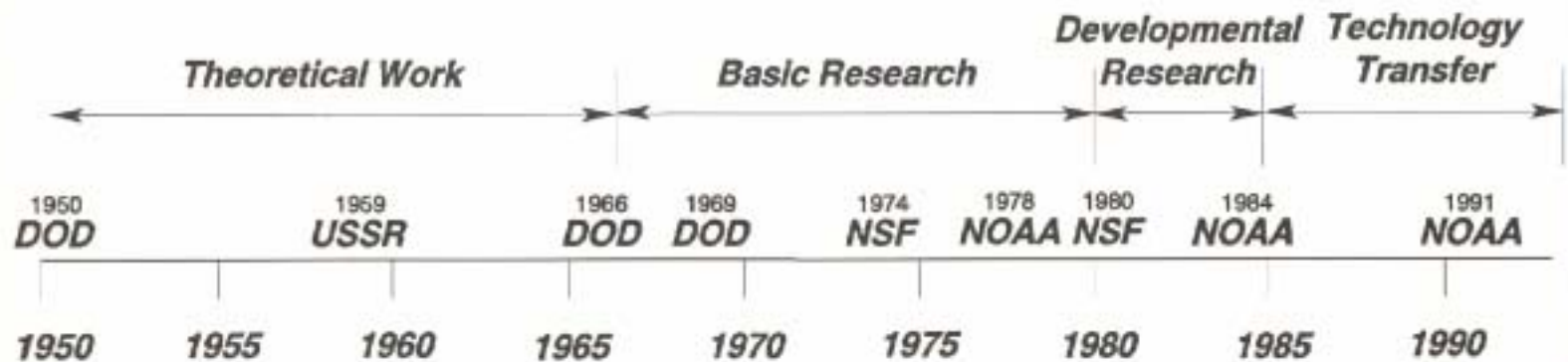




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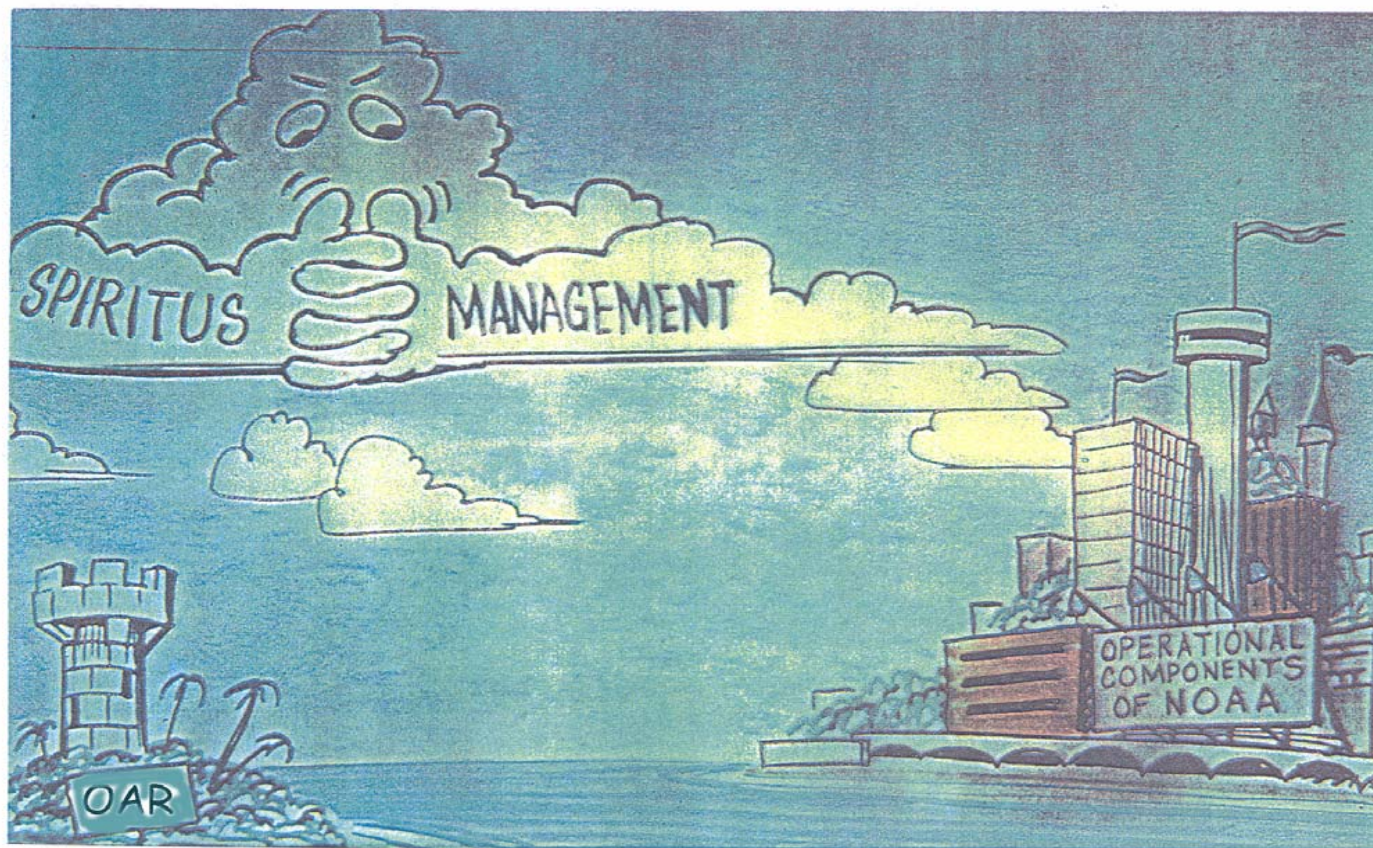


HISTORY OF PROFILER TECHNOLOGY



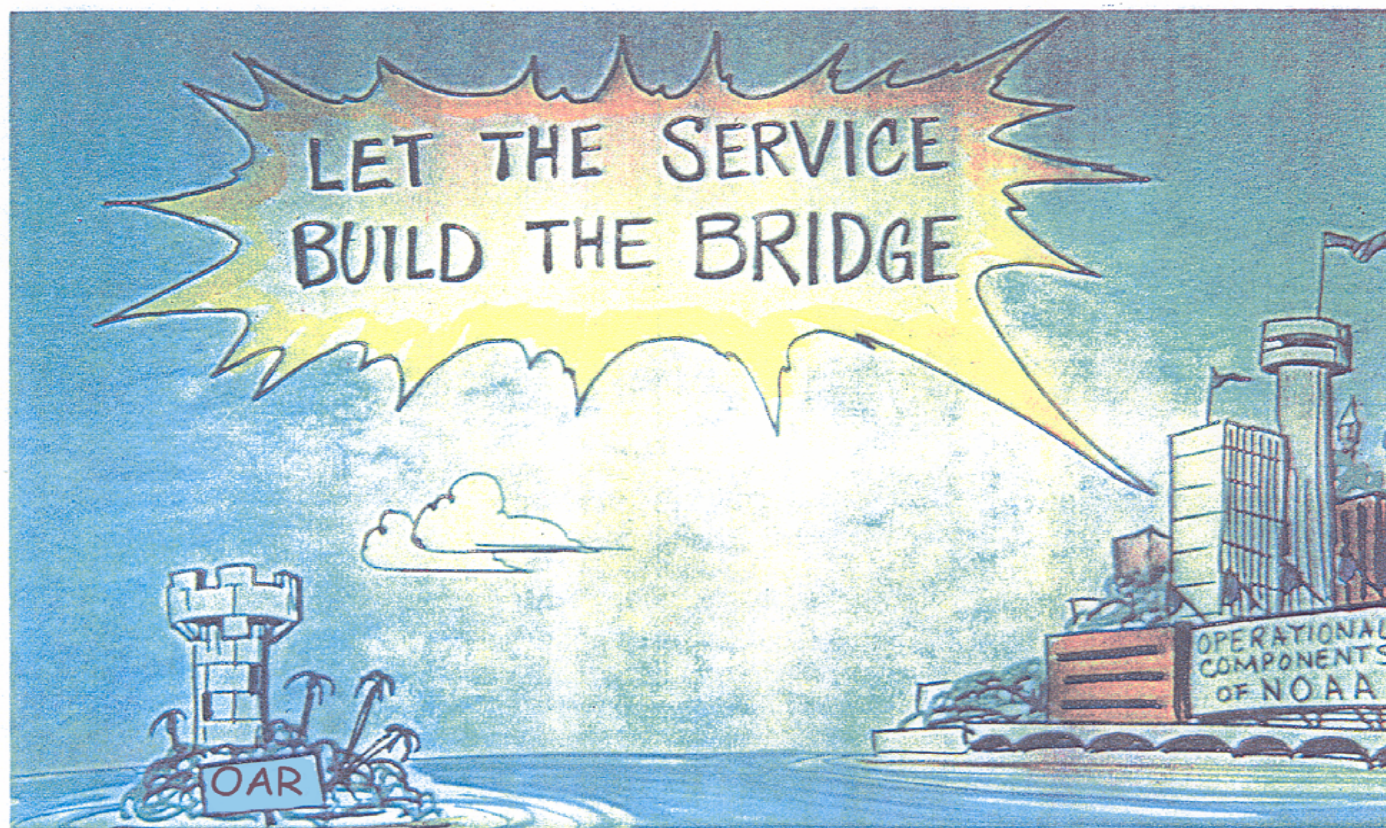
Wind Profiler is a clear-air Doppler radar





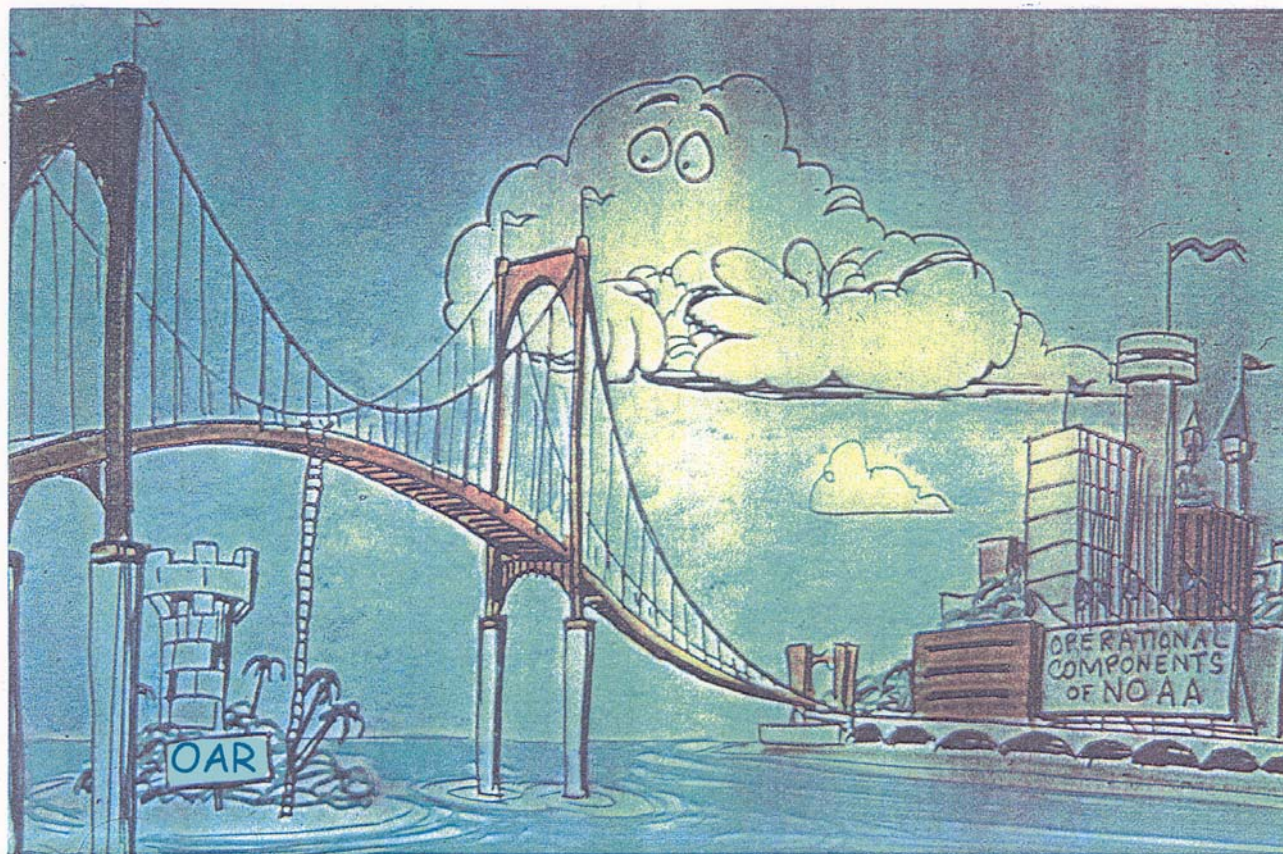
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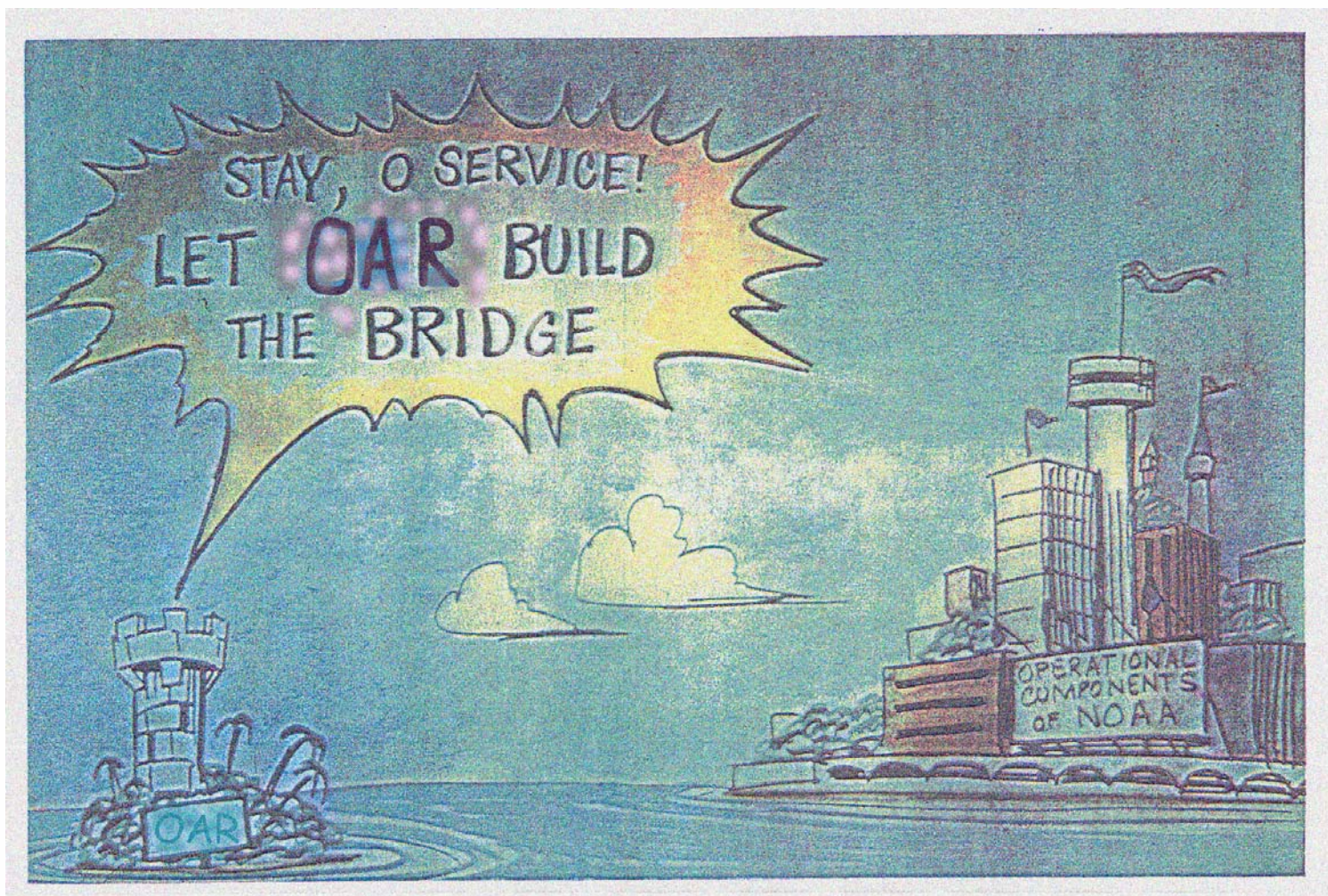
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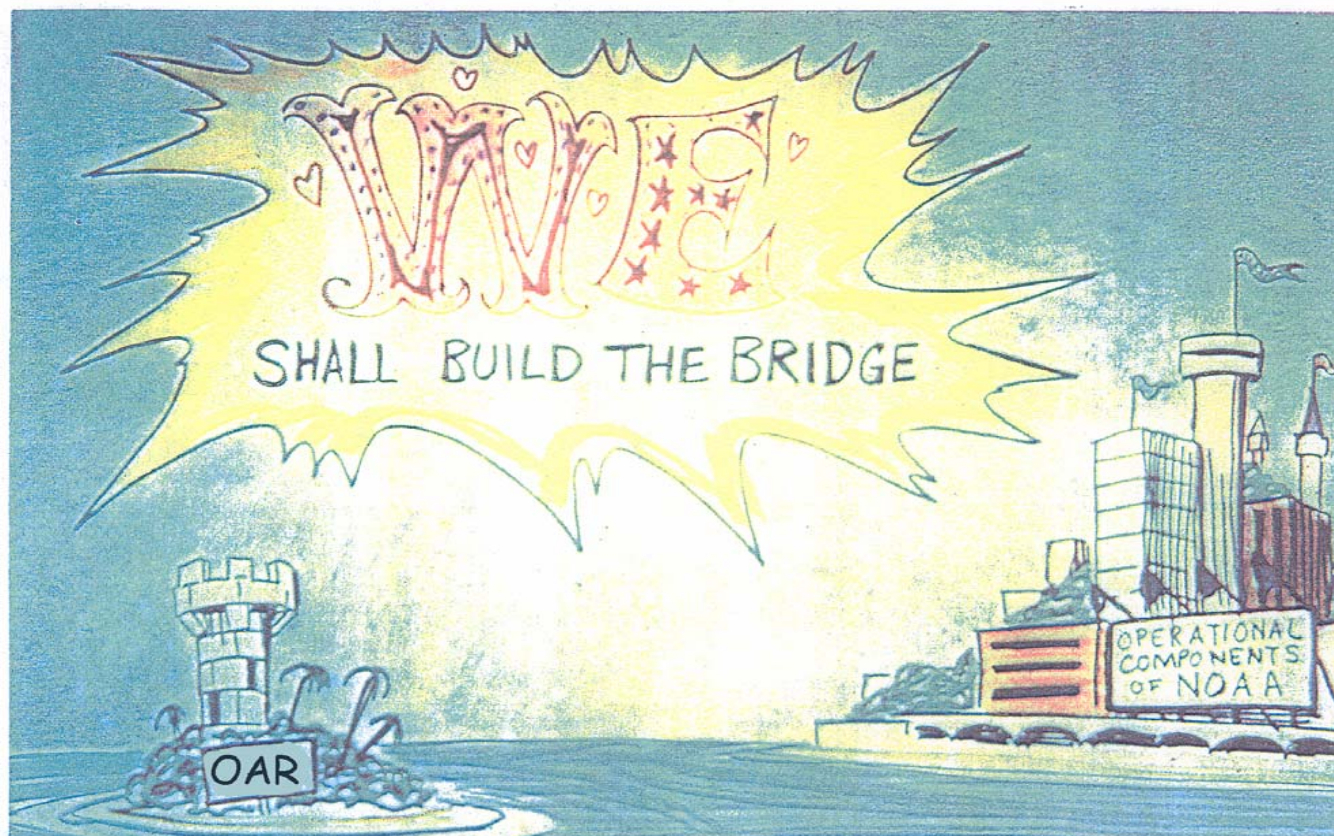
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NOAA Profiler Network

- Profiler Program began in FY 1986 with a congressional initiative for the Wind Profiler Demonstration Network
- WPDN Mission Statement: “To develop, deploy and operate a network of 30 wind profilers in the central United States and, in cooperation with the NWS and other agencies, conduct an assessment of that network.”
- Network Achieved Full Operational Capability in FY 1992



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NOAA Profiler Network-Technical Information

- Operating Frequency – 404.37 MHz (Experimental)
- Solid State Transmitter
- Coaxial, Collinear Phased Array Antenna
- Electronic Beam Steering
- Remote Failure Diagnostics
- Landline and GOES-DCP Communications
- Autonomous, All-Weather



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NOAA Profiler Network-System Evolution

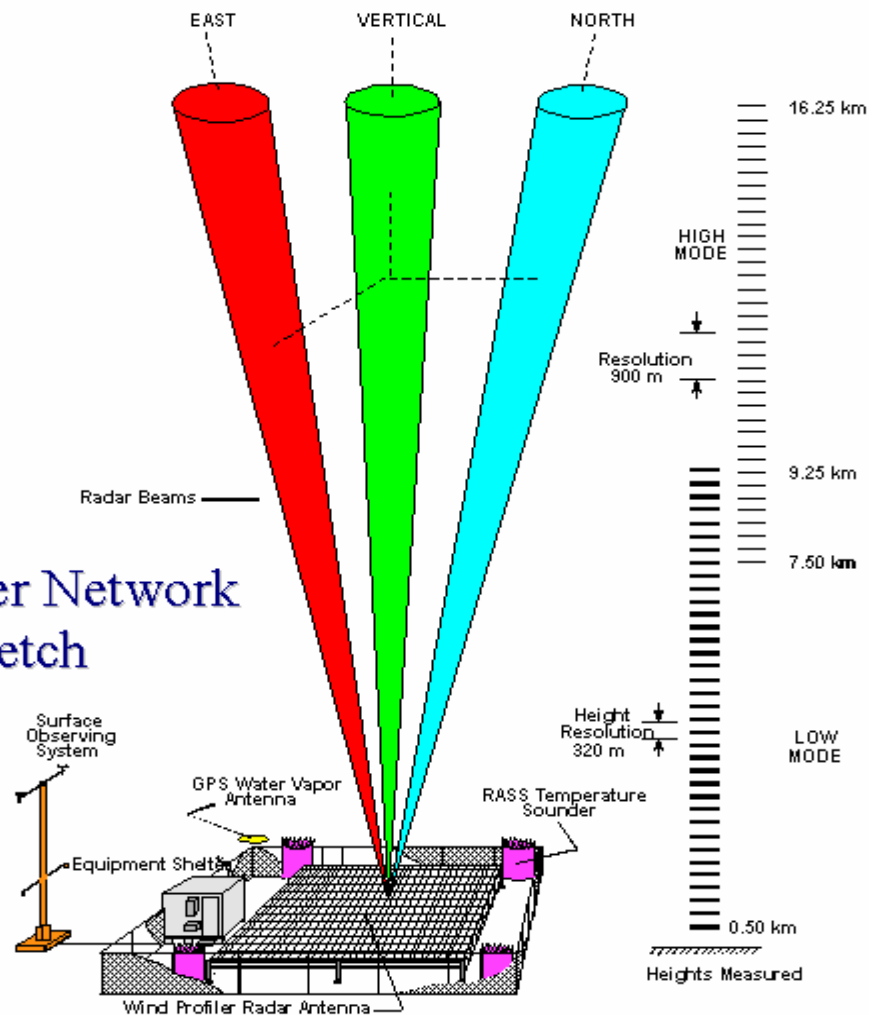
- Systems: Wind Profiles
 Temperature Profiles (RASS)
 GPS Water Vapor Measurements
 Surface Meteorological Sensor Suite
- Data: High quality hourly and sub-hourly
- WPDN → NPN



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NOAA Profiler Network Site Sketch



Profiling_v4 PPT



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Map of the United States showing the locations of 404 MHz and 449 MHz Profilers. The map includes state boundaries and labels for various locations. A legend in the bottom right corner indicates that blue dots represent 404 MHz Profilers, green triangles represent 449 MHz Profilers, and a brown star represents a Profiler Control Center. Locations marked with blue dots include Wood Lake, Blue River, Slater, Neligh, Fairbury, Lathrop, McCook, Medicine Bow, Macciman, Winchster, Widdett, Granada, Hillsboro, Haviland, Conway, Neodesha, Bloomfield, Vici, Lamont, Haskell, DeQuett, Jayton, Palestine, Ledbetter, White Sands, Tucson, and Artes. Locations marked with green triangles include Hatteville, Hatteville Profiler Control Center, and Syracuse. A red star in the Maryland/Delaware area is labeled RWSTG.



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NOAA Profiler Network - Operations & Maintenance

OAR/NWS Basic Agreement

- **National Data Buoy Center** for engineering, contract management, and surface met sensor support
- **Central and Southern Regions** for profiler field maintenance by Electronics Technicians (El-Techs)
- **Office of Operational Systems** for logistics and configuration management support, depot-level maintenance (NRC) and warehousing of spare parts (NLSC)

Annual Training for NWS Technicians

NPN operates substantially along NWS lines as though profilers were commissioned NWS systems

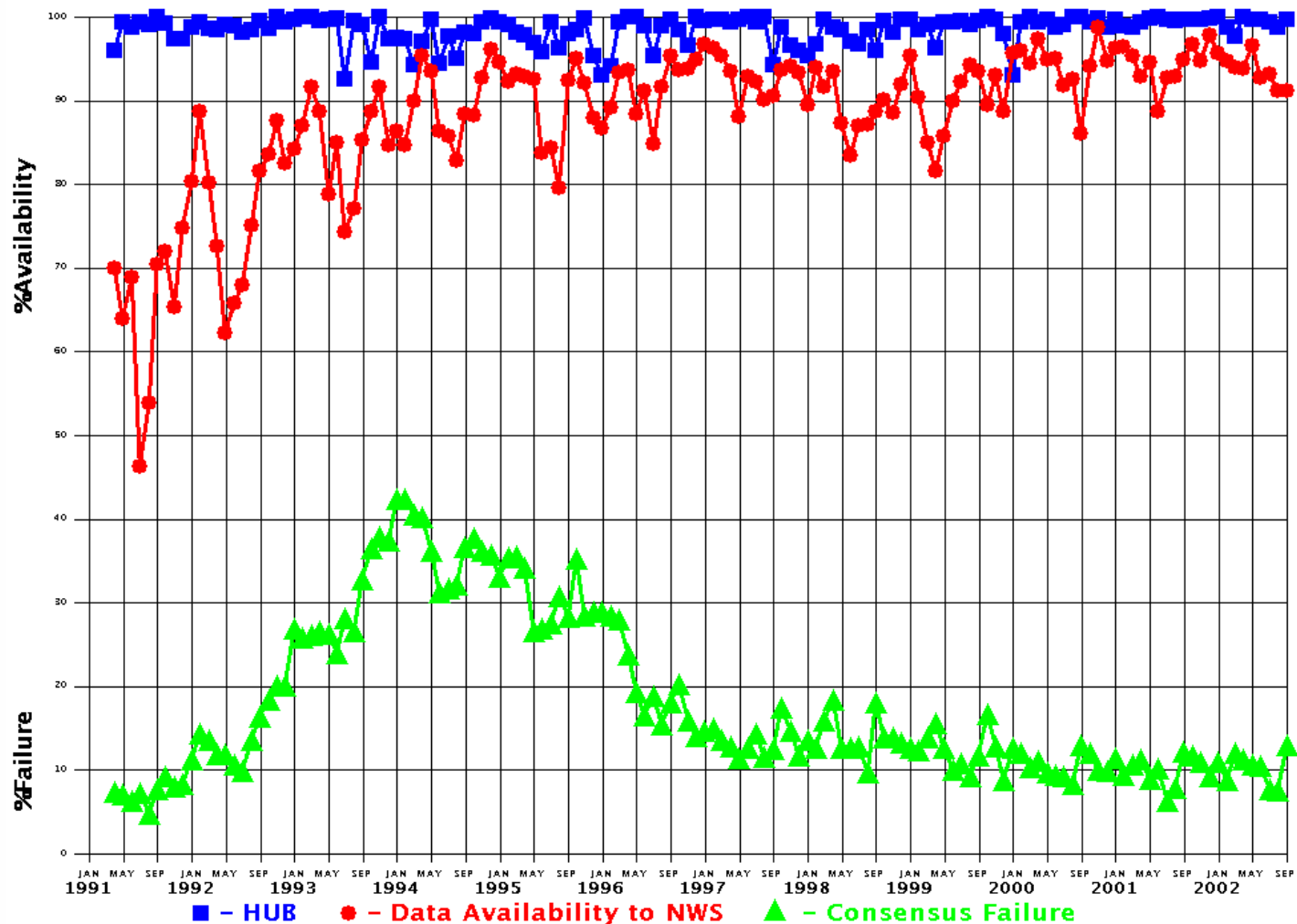


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NOAA Profiler Network

404 Profiler Data Availability



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Upper-Air Network



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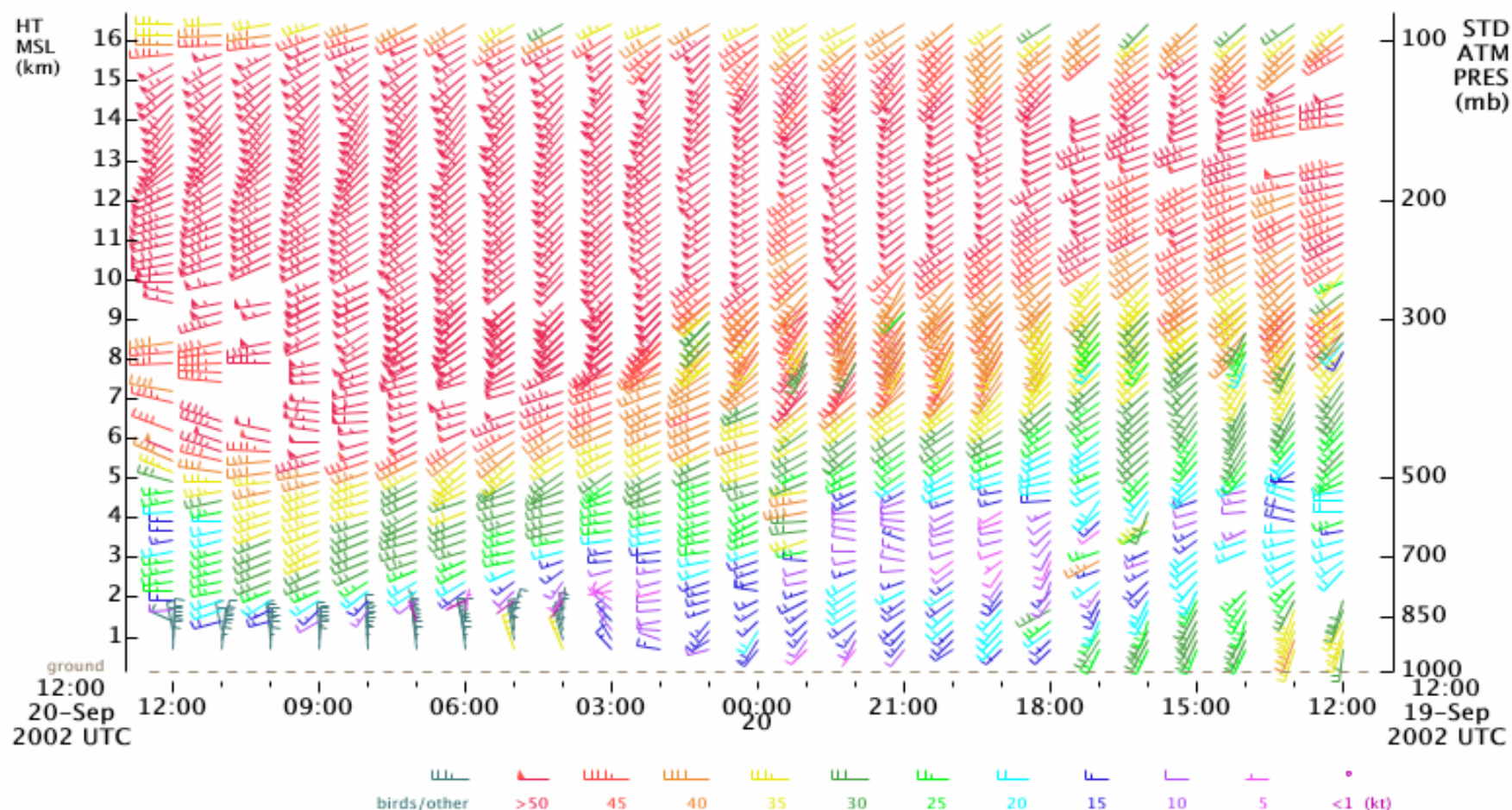


LEDBETTER, TX US Lat:30.09 Lon:-96.78 Elev:122m

Wind Speed and Direction | Mode:310m,900m | Res:60min | QC:good+BIRD

PrecipitationRate | Res:60min | QC:good+BIRD

NOAA PROFILER NETWORK



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NOAA Profiler Network Customers

- NWS – WFO's, NCEP, SPC, AWC, NHC
- NESDIS
- NOS
- OAR
- DoE/DoD/DoT
- National Atmosphere Release Advisory Capability (NARAC)
- Private Meteorologists - Private Industry
- WMO Members thru GTS
- ECMWF/METEO - France
- Public/World <http://www.profiler.noaa.gov>



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Summary

- NOAA Profilers are cost effective remote sensing platforms capable of supporting other instruments.
- Program infrastructure has made RASS, GPS-IPW and BLP/CAPS data sharing possible.
- Although NOAA profilers are not yet NWS commissioned systems, they are trusted resources routinely used by forecasters, modelers, researchers and others to meet the **Challenge of 21st Century weather**.

